

## CLAIMS

What is claimed is:

1 1. A method for discarding a data packet comprising the steps of:  
2 classifying the data packet according to a type of service (TOS) indicator;  
3 modifying the data packet with an internal service class (ISC) indicator  
4 according to the TOS indicator;  
5 comparing the ISC to a committed information rate (CIR); and  
6 discarding the packet if the ISC exceeds the CIR.

1 2. The method of claim 1 wherein the step of comparing the ISC to the  
2 CIR comprises the steps of:  
3 finding an entry in a congestion clip table (CCT) using the ISC as a key  
4 value; and  
5 comparing the entry to the CIR.

1 3. The method of claim 1 wherein the step of classifying the data packet  
2 according to a TOS indicator comprises the steps of:  
3 analyzing a field of the data packet to determine a packet characteristic;  
4 and  
5 assigning the TOS indicator based upon the packet characteristic.

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1 4. A method for discarding a data packet comprising the steps of:  
2 classifying the data packet according to a type of service (TOS) indicator;  
3 modifying the data packet with an internal service class (ISC) indicator  
4 according to the TOS indicator;  
5 modifying the data packet with a watermark (WM) indicator according  
6 to the availability of a system resource;  
7 comparing the ISC, WM and a drop preference (DP) indicator of the  
8 data packet to a committed information rate (CIR); and  
9 discarding the packet if the DP exceeds the CIR.

1 5. The method of claim 4 wherein the step of comparing the ISC, WM  
2 and DP to the CIR comprises the steps of:  
3 concatenating the ISC, WM and the DP into a key value;  
4 finding an entry in a congestion clip table (CCT) using the ISC as a key  
5 value; and  
6 comparing the entry to the CIR.

1 6. The method of claim 5 wherein the step of classifying the data packet  
2 according to a TOS indicator comprises the steps of:  
3 analyzing a field of the data packet to determine a packet characteristic;  
4 and  
5 assigning the TOS indicator based upon the packet characteristic.

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1 7. An apparatus for discarding a data packet comprising:  
2 a classifier to classify the data packet according to a type of service (TOS)  
3 indicator;  
4 a modifier logically coupled to the classifier to modify the data packet  
5 with an internal service class (ISC) indicator according to the TOS indicator;  
6 a comparator logically coupled to the modifier to compare the ISC to a  
7 committed information rate (CIR); and  
8 a discarder logically coupled to the comparator to discard the packet if  
9 the ISC exceeds the CIR.

1 8. The apparatus of claim 7 wherein the comparator comprises:  
2 a congestion clip table (CCT) having an entry indexed by the ISC; and  
3 a comparator logically coupled to the modifier to compare the entry to a  
4 committed information rate (CIR).

1 9. The apparatus of claim 7 wherein the classifier comprises:  
2 an analyzer to analyze a field of the data packet to determine a packet  
3 characteristic; and  
4 an assigner logically coupled to the analyzer to assign the TOS indicator  
5 based upon the packet characteristic.

1 10. An apparatus for discarding a data packet comprising:  
2 a classifier to classify the data packet according to a type of service (TOS)  
3 indicator;  
4 a first modifier logically coupled to the classifier to modify the data  
5 packet with an internal service class (ISC) indicator according to the TOS  
6 indicator;  
7 a second modifier logically coupled to the classifier to modify the data  
8 packet with a watermark (WM) indicator according to the availability of a  
9 system resource;  
10 a comparator logically coupled to the modifier to compare the ISC, WM  
11 and a drop preference (DP) indicator of the data packet to a committed  
12 information rate (CIR); and  
13 a discarder logically coupled to the comparator to discard the packet if  
14 the DP exceeds the CIR.

1 11. The apparatus of claim 7 wherein the comparator comprises:  
2 a concatenator to concatenate the ISC, WM and the DP into a key value;  
3 a congestion clip table (CCT) having an entry indexed by the key value;  
4 and  
5 a comparator logically coupled to the modifier to compare the entry to a  
6 committed information rate (CIR).

1 12. The apparatus of claim 7 wherein the classifier comprises:  
2 an analyzer to analyze a field of the data packet to determine a packet  
3 characteristic; and  
4 an assigner logically coupled to the analyzer to assign the TOS indicator  
5 based upon the packet characteristic.

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1 13. An article of manufacture for use in a computer system to discard a  
2 data packet, the article of manufacture comprising a computer usable  
3 medium having computer readable program code means embodied in the  
4 medium, the program code means including:  
5 computer readable program code means embodied in the computer  
6 usable medium for causing a computer to classify the data packet according to  
7 a type of service (TOS) indicator;  
8 computer readable program code means embodied in the computer  
9 usable medium for causing a computer to modify the data packet with an  
10 internal service class (ISC) indicator according to the TOS indicator;  
11 computer readable program code means embodied in the computer  
12 usable medium for causing a computer to compare the ISC to a committed  
13 information rate (CIR); and  
14 computer readable program code means embodied in the computer  
15 usable medium for causing a computer to discard the packet if the ISC exceeds  
16 the CIR.

1 14. The article of manufacture of claim 13 wherein the computer readable  
2 program code means embodied in the computer usable medium for causing a  
3 computer to compare the ISC to the CIR comprises:  
4 computer readable program code means embodied in the computer  
5 usable medium for causing a computer to find an entry in a congestion clip  
6 table (CCT) using the ISC as a key value; and  
7 computer readable program code means embodied in the computer  
8 usable medium for causing a computer to compare the entry to the CIR.

1 15. The article of manufacture of claim 13 wherein the computer readable  
2 program code means embodied in the computer usable medium for causing a  
3 computer to classify the data packet according to a TOS indicator comprises:  
4 computer readable program code means embodied in the computer  
5 usable medium for causing a computer to analyze a field of the data packet to  
6 determine a packet characteristic; and  
7 computer readable program code means embodied in the computer  
8 usable medium for causing a computer to assign the TOS indicator based  
9 upon the packet characteristic.

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1 16. An article of manufacture for use in a computer system to discard a  
2 data packet, the article of manufacture comprising a computer usable  
3 medium having computer readable program code means embodied in the  
4 medium, the program code means including:  
5 computer readable program code means embodied in the computer  
6 usable medium for causing a computer to classify the data packet according to  
7 a type of service (TOS) indicator;  
8 computer readable program code means embodied in the computer  
9 usable medium for causing a computer to modify the data packet with an  
10 internal service class (ISC) indicator according to the TOS indicator;  
11 computer readable program code means embodied in the computer  
12 usable medium for causing a computer to modify the data packet with a  
13 watermark (WM) indicator according to the availability of a system resource;  
14 computer readable program code means embodied in the computer  
15 usable medium for causing a computer to compare the ISC, WM and a drop  
16 preference (DP) indicator of the data packet to a committed information rate  
17 (CIR); and  
18 computer readable program code means embodied in the computer  
19 usable medium for causing a computer to discard the packet if the DP exceeds  
20 the CIR.

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1 17. The article of manufacture of claim 16 wherein the computer readable  
2 program code means embodied in the computer usable medium for causing a  
3 computer to compare the ISC, WM and DP to the CIR comprises:

4 computer readable program code means embodied in the computer  
5 usable medium for causing a computer to concatenate the ISC, WM and the  
6 DP into a key value;

7 computer readable program code means embodied in the computer  
8 usable medium for causing a computer to find an entry in a congestion clip  
9 table (CCT) using the key value; and

10 computer readable program code means embodied in the computer  
11 usable medium for causing a computer to compare the entry to the CIR.

1 18. The article of manufacture of claim 16 wherein the computer readable  
2 program code means embodied in the computer usable medium for causing a  
3 computer to classify the data packet according to a TOS indicator comprises:

4 computer readable program code means embodied in the computer  
5 usable medium for causing a computer to analyze a field of the data packet to  
6 determine a packet characteristic; and

7 computer readable program code means embodied in the computer  
8 usable medium for causing a computer to assign the TOS indicator based  
9 upon the packet characteristic.